

US-PAT-NO: 6246485

DOCUMENT-IDENTIFIER: US 6246485 B1

TITLE: Printer communication system and method

DATE-ISSUED: June 12, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP
Brown; Rickey Carter	Bardstown	KY	N/A
Kolb; Joseph Peterson	Lexington	KY	N/A
Songer; Gail Marie	Foster City	CA	N/A
Yohon, Jr.; Edward William	Lexington	KY	N/A

US-CL-CURRENT: 358/1.13, 358/1.14 , 358/1.16 , 358/296 , 358/404 , 358/443

ABSTRACT:

A printer communication system includes a printer (20) having a printer controller (34) with memory (38) and a processor (36). The printer (20)

receives and transmits information through a port (40) to which a host computer (10) is coupled. The printer controller (34) may be programmed to be operable to receive configuration-related commands through the port (40), process the configuration-related commands received by the port immediately provided that a command is a safe command to process while the printer (20) is busy processing a print job. The printer (20) may respond to the host computer (10) by indicating that the change was successful or that the printer (20) must be taken offline before the change may be made. The printer controller (34) is programmed to be remotely taken offline and put back online. A symbol set list command may be used by printer (20) to send symbol sets to host computer (10). Font information may also be sent to a host computer (10) by a printer (20) so that a font table including associated symbol sets may be constructed in computer (10).

25 Claims, 9 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 6

----- KWIC -----

Brief Summary Text - BSTX (12):

The present invention relates to method and apparatus that addresses the disadvantages, problems, and needs set forth above. One aspect of the invention relates to a printer, including a printer controller having a memory for storing a plurality of **printer configuration** settings and a processor, and a port coupled to the printer controller which receives signals from a host computer, wherein the printer controller receives configuration change information via the port and processes the configuration change information to effect an **update** of one or more of the plurality of **printer configuration** settings using the configuration change information while the printer is processing a current print job if the **update** will not adversely affect the processing of the current print job.

Claims Text - CLTX (4):

wherein said printer controller receives configuration change information via said port and processes said configuration change information to effect an **update** of one or more of said plurality of **print r**

**configuration** settings using said configuration change information while said printer is processing a current print job if said **update** will not adversely affect the processing of said current print job.

Claims Text - CLTX (5):

2. The printer of claim 1, wherein said printer processor processes said configuration change information to effect a substantially immediate **update** of said one or more of said plurality of **printer configuration** settings using said configuration change information.

Claims Text - CLTX (7):

4. The printer of claim 1, wherein upon **updating said printer configuration** settings said processor further **updates the printer configuration** environment associated with the **updated** settings while said printer is processing said current print job.

US-PAT-NO: 5625757

DOCUMENT-IDENTIFIER: US 5625757 A

TITLE: Printing system

DATE-ISSUED: April 29, 1997

US-CL-CURRENT: 358/1.14, 358/1.15

APPL-NO: 08/ 361226

DATE FILED: December 21, 1994

FOREIGN-APPL-PRIORITY-DATA:		
COUNTRY	APPL-NO	APPL-DATE
JP	5-326808	December 24, 1993
JP	6-046283	March 17, 1994

----- KWIC -----

Detailed Description Text - DETX (81):

In this case, the printing system uses "**polling**" and "query of the **printer** controller status" shown in FIG. 10 and "asynchronous report message" shown in FIG. 11. The printing system further uses commands "stop",

"cancel", and  
"restart" shown in FIG. 10.

Detailed Description Text - DETX (106):

(2) The distributed printing management server 14 **updates the printer configuration** management table 7200 on the basis of the watching result, thereby setting the table 7200 into the newest state (71-3).

Detailed Description Text - DETX (429):

(a) Only one **printer configuration** management table exists in the printing system. The table is provided in the distributed printing management server and only such a server **updates**.

Detailed Description Text - DETX (456):

(iv) When each printer/spooler control server detects a self status change or a status change of the printer connected to the server, the printer/spooler control server transfers a printer status transmission command (refer to FIG. 36) to the distributed printing management server, thereby reporting such a status change. On the basis of such a report, the distributed printing management server **updates** the status of the printer/spooler control server or

printer in the **printer configuration** management table.

Detailed Description Text - DETX (467):

(iii) The distributed printing management server forms the connection printer description table for such a host on the basis of the connection information in the **printer configuration** management table. In this instance, the forming date and time of the connection printer description table for such a host in the file are **updated**.

Detailed Description Text - DETX (492):

(1) The alive flags and statuses (1422, 1432, 1425, 1435, 1452, 1456, etc.) of a printer/spooler control server 542 on a **printer configuration** table 5411 are **updated** by a method shown in FIG. 54.

Detailed Description Text - DETX (495):

(3) When each printer/spooler control server detects a self status change or a status change of the printer connected to the server, the printer/spooler control server transfers a printer status transmission command 3 (5430) shown in FIG. 36 to the distributed printing management server, thereby reporting such a fact. On the basis of such a report, the distributed

printing  
management server 541 updates the status of the printer configuration  
management table 5411.

Detailed Description Text - DETX (496):

In case of the network printer, the printer status change is detected by using an asynchronous report 2 (5420). In case of the server direct coupling printer, such a detection is executed by using a periodic watching [also referred to as a polling; 1-2 (5410-2) and 2-3 (5410-3)].

Detailed Description Text - DETX (497):

(4) It is now assumed that the above updating of the printer configuration management table is executed after the printers adequate to the specifications were retrieved and the job was registered in the printer/spooler control server in a state in which the updated contents don't coincide with the real state of the printer. Therefore, there is a case where an error based on the above dissidence occurs at the time of the execution of the job by the printer/spooler control server. In this case, the error processes are performed as follows.



Detailed Description Text - DETX (520):

(6) The system manager of the printing system inputs the connection information corresponding to the configuration change of the above items (1) to (5) and **updates the printer configuration** management table by using the "**printer configuration** registration tool" having the foregoing GUI. In this instance, the same items as those shown in (3) (b) in the install of the foregoing item 1. are **updated**.

Detailed Description Text - DETX (541):

(Note) In the present command, only the **polling** watching of the alive flag is executed. Status changes other than the alive flags of the **printer**/spooler control server and the **printers** which are controlled by this server are asynchronously reported from the **printer**/spooler control server to the distributed printing management server by using the **printer** status transmission command.

US-PAT-NO: 6246485

DOCUMENT-IDENTIFIER: US 6246485 B1

TITLE: Printer communication system and method

DATE-ISSUED: June 12, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP
Brown; Rickey Carter	Bardstown	KY	N/A
Kolb; Joseph Peterson	Lexington	KY	N/A
Songer; Gail Marie	Foster City	CA	N/A
Yohon, Jr.; Edward William	Lexington	KY	N/A

US-CL-CURRENT: 358/1.13, 358/1.14 , 358/1.16 , 358/296 , 358/404 , 358/443

ABSTRACT:

A printer communication system includes a printer (20) having a printer controller (34) with memory (38) and a processor (36). The printer (20)

receives and transmits information through a port (40) to which a host computer (10) is coupled. The printer controller (34) may be programmed to be operable to receive configuration-related commands through the port (40), process the configuration-related commands received by the port immediately provided that a command is a safe command to process while the printer (20) is busy processing a print job. The printer (20) may respond to the host computer (10) by indicating that the change was successful or that the printer (20) must be taken offline before the change may be made. The printer controller (34) is programmed to be remotely taken offline and put back online. A symbol set list command may be used by printer (20) to send symbol sets to host computer (10). Font information may also be sent to a host computer (10) by a printer (20) so that a font table including associated symbol sets may be constructed in computer (10).

25 Claims, 9 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 6

----- KWIC -----

Brief Summary Text - BSTX (12):

The present invention relates to method and apparatus that addresses the disadvantages, problems, and needs set forth above. One aspect of the invention relates to a printer, including a printer controller having a memory for storing a plurality of printer configuration settings and a processor, and a port coupled to the printer controller which receives signals from a host computer, wherein the printer controller receives configuration change information via the port and processes the configuration change information to effect an update of one or more of the plurality of printer configuration settings using the configuration change information while the printer is processing a current print job if the update will not adversely affect the processing of the current print job.

Detailed Description Text - DETX (20):

State Manager 70 is a task which first learns of events external to the code controller 34 that may occur to printer 20. State Manager 70 notes, for example, if the print\_r cover has been opened and

orchestrates providing this information back to users such as NPAP Task 54. State Manager 70 will become aware of certain conditions due to hardware interrupts to the microprocessor of printer 20, while other status information is checked by State Manager 70 on a polling basis. Printer configuration changes and device status alerts are passed from State Manager 70 to NPAP Task 54 for communication to attached host computer 10 using NPAP. The NPAP will be described in more detail below.

Claims Text - CLTX (4):

wherein said printer controller receives configuration change information via said port and processes said configuration change information to effect an update of one or more of said plurality of printer configuration settings using said configuration change information while said printer is processing a current print job if said update will not adversely affect the processing of said current print job.

Claims Text - CLTX (5):

2. The printer of claim 1, wherein said printer processor processes said configuration change information to effect a substantially

immediate **update** of  
said one or more of said plurality of **printer configuration**  
settings using said  
configuration change information.

Claims Text - CLTX (7):

4. The printer of claim 1, wherein upon **updating said**  
**printer configuration**  
settings said processor further **updates the printer**  
**configuration** environment  
associated with the **updated** settings while said printer is  
processing said  
current print job.

DERWENT-ACC-NO: 1998-001980

DERWENT-WEEK: 200135

COPYRIGHT 1999 DERWENT INFORMATION LTD

TITLE: Printer communication and control system -  
in which

printer controller receives and processes  
configuration

change information to effect **update of printer  
configuration** settings

INVENTOR: BROWN, R C; KOLB, J P ; SONGER, G M ;  
YOHON, E W

PRIORITY-DATA: 1996US-0652858 (May 23, 1996)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE
PAGES MAIN-IPC		
EP 809176 A2	November 26, 1997	E
026 G06F 003/12		
US 6246485 B1	June 12, 2001	N/A 000
B41B 015/00		
AU 9723574 A	November 27, 1997	N/A
000 G06F 013/10		
CA 2203445 A	November 23, 1997	N/A
000 G06F 003/12		

JP 10129083 A B41J 029/38	May 19, 1998	N/A	026
KR 97076287 A 000 G06F 013/10	December 12, 1997	N/A	
MX 9703805 A1 B41L 001/00	April 1, 1998	N/A	000
AU 719748 B G06F 013/10	May 18, 2000	N/A	000

INT-CL (IPC): B41B015/00, B41J015/00 , B41J029/38 ,  
B41L001/00 ,  
G03G021/00 , G06F003/12 , G06F013/10 , G06F015/00 ,  
H04L029/10 ,  
H04N001/21

ABSTRACTED-PUB-NO: EP 809176A

#### BASIC-ABSTRACT:

The printer (20) includes a printer controller (24) having a memory (38) for storing printer configuration settings, and a processor (36). A port (40) coupled to the printer controller (34) receives signals from a host computer. The printer controller (34) receives configuration change information via the port (40).

The printer controller (34) processes the configuration change information to effect an update of one or more of the printer configuration



settings using the configuration change information, while the printer (20) is processing the a current print job if the **update** will not adversely affect the processing of the current print job.

ADVANTAGE - Allows for remote control and monitoring of printer including configuration changes, independently of any control panel on printer. Enables safe-printer-configuration changes to be made immediately by printer.

ABSTRACTED-PUB-NO: US 6246485B

EQUIVALENT-ABSTRACTS:

The printer (20) includes a printer controller (24) having a memory (38) for storing printer configuration settings, and a processor (36). A port (40) coupled to the printer controller (34) receives signals from a host computer. The printer controller (34) receives configuration change information via the port (40).

The printer controller (34) processes the configuration change information to effect an **update** of one or more of the **printer configuration** settings using the configuration change information, while the printer (20) is

processing the a  
current print job if the update will not adversely affect the  
processing of the  
current print job.

ADVANTAGE - Allows for remote control and monitoring of  
printer including  
configuration changes, independently of any control panel on  
printer. Enables  
safe-printer-configuration changes to be made immediately by  
printer.

----- KWIC -----

Basic Abstract Text - ABTX (2):

The printer controller (34) processes the configuration  
change information  
to effect an update of one or more of the printer  
configuration settings using  
the configuration change information, while the printer (20) is  
processing the  
a current print job if the update will not adversely affect the  
processing of  
the current print job.

Title - TIX (1):

Printer communication and control system - in which printer  
controller  
receives and processes configuration change information to  
effect update of

## **printer configuration settings**

Equivalent Abstract Text - ABEQ (2):

The printer controller (34) processes the configuration change information to effect an **update** of one or more of the **printer configuration** settings using the configuration change information, while the printer (20) is processing the a current print job if the **update** will not adversely affect the processing of the current print job.

US-PAT-NO: 5625757

DOCUMENT-IDENTIFIER: US 5625757 A

TITLE: Printing system

DATE-ISSUED: April 29, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP
Kageyama; Seiji JP	Yokohama	N/A	N/A
Matsumoto; Satoru JP	Yokohama	N/A	N/A
Kitagawa; Makoto JP	Fujisawa	N/A	N/A
Shimakawa; Takuya N/A JP	Yokohama	N/A	
Kazama; Junichi JP	Yokohama	N/A	N/A
Okada; Tadashi JP	Hadano	N/A	N/A

US-CL-CURRENT: 358/1.14, 358/1.15

ABSTRACT:

In a printing system including a plurality of terminal

equipment, a plurality of printers which can be shared by the terminal equipment, one or more printer/spooler control servers each for receiving a print from the terminal equipment and for controlling the print by the printer, and a distributed printing management server, for various errors which occur in the printers, the contents of the errors are informed to the user and an error recovery process according to the error is realized. Thus, a use efficiency, performance, reliability, and serviceability as a printing system are improved.

11 Claims, 107 Drawing figures

Exemplary Claim Number: 7

Number of Drawing Sheets: 96

----- KWIC -----

Detailed Description Text - DETX (106):

(2) The distributed printing management server 14 **updates the printer configuration** management table 7200 on the basis of the watching result, thereby setting the table 7200 into the newest state (71-3).

Detailed Description Text - DETX (429):

(a) Only one **printer configuration** management table exists in the printing system. The table is provided in the distributed printing management server and only such a server **updates**.

Detailed Description Text - DETX (456):

(iv) When each printer/spooler control server detects a self status change or a status change of the printer connected to the server, the printer/spooler control server transfers a printer status transmission command (refer to FIG. 36) to the distributed printing management server, thereby reporting such a status change. On the basis of such a report, the distributed printing management server **updates** the status of the printer/spooler control server or printer in the **printer configuration** management table.

Detailed Description Text - DETX (467):

(iii) The distributed printing management server forms the connection printer description table for such a host on the basis of the connection information in the **printer configuration** management table. In this instance, the forming date and time of the connection printer description

table for such  
a host in the file are **updated**.

Detailed Description Text - DETX (492):

(1) The alive flags and statuses (1422, 1432, 1425, 1435, 1452, 1456, etc.)  
of a printer/spooler control server 542 on a **printer configuration** table 5411  
are **updated** by a method shown in FIG. 54.

Detailed Description Text - DETX (495):

(3) When each printer/spooler control server detects a self status change or  
a status change of the printer connected to the server, the printer/spooler  
control server transfers a printer status transmission command 3 (5430) shown  
in FIG. 36 to the distributed printing management server, thereby reporting  
such a fact. On the basis of such a report, the distributed printing  
management server 541 **updates** the status of the **printer configuration**  
management table 5411.

Detailed Description Text - DETX (497):

(4) It is now assumed that the above **updating of the printer configuration**  
management table is executed after the printers adequate to the specifications

were retrieved and the job was registered in the printer/spooler control server in a state in which the **updated** contents don't coincide with the real state of the printer. Therefore, there is a case where an error based on the above dissidence occurs at the time of the execution of the job by the printer/spooler control server. In this case, the error processes are performed as follows.

Detailed Description Text - DETX (520):

(6) The system manager of the printing system inputs the connection information corresponding to the configuration change of the above items (1) to (5) and **updates the printer configuration** management table by using the "**printer configuration** registration tool" having the foregoing GUI. In this instance, the same items as those shown in (3) (b) in the install of the foregoing item 1. are **updated**.